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HYDROGEN PURGED MOTOR FOR ANODE RE-CIRCULATION BLOWER

ABSTRACT OF THE DISCLOSURE

A fuel cell system that can be used to power a vehicle is disclosed. The system includes a fuel cell stack, which uses hydrogen and an oxidizer to generate electricity, and a re-circulation loop that returns unreacted hydrogen to the fuel cell stack. The system includes a hermetically sealed assembly having a blower portion that pressurizes hydrogen in the re-circulation loop and a motor portion that drives the blower. The system also includes a source of make-up hydrogen for replenishing hydrogen in the re-circulation loop. The source introduces make-up hydrogen in the motor portion of the assembly at a pressure greater than the pressure in the blower portion of the assembly. Consequently, make-up hydrogen flows from the motor portion of the assembly into the blower portion assembly where it mixes with components in the re-circulation loop. A method of replenishing hydrogen in the fuel cell stack is also disclosed.

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